

WHAT IS CLAIMED IS:

1. In a wireless communication system comprising at least two Base Stations, at least one Switch in communication with the Base Stations, and at least one mobile unit, a method of handing off the mobile unit from a Base Station communicating with the mobile unit and a neighboring Base Station, comprising:

smoothing a plurality of signals received from a handset by a plurality of Base Stations;

comparing the signals with one another; and

selecting a Base Station for handoff based on signal quality.

2. Method, according to claim 1, wherein:

the signals are compared by computing an average signal quality received from a given Base Station over a time interval encompassing subsequent signals from the given Base Station.

3. Method, according to claim 1, further comprising:

comparing the signals only during times in which the signal was received by more than one Base Station.

4. Method, according to claim 1, wherein the signal quality is based on a measurement selected from the group consisting of energy level, signal-to-noise ratio (SNR), packet loss ratio, and bit error rate (BER).

5. Method, according to claim 1, wherein:

the Base Stations communicate with the mobile units in hops;

the method further comprising:

prior to comparing the signals, aligning in time the measurements of the same hops.

6. Method, according to claim 5, wherein:
the measurements are averaged over a number (X) of hops
7. Method, according to claim 1, wherein the mobile unit is a device selected from the group consisting of:
telephone handset, standard cordless telephone handset, cellular telephone handset, personal data device, personal digital assistant (PDA), computer, laptop computer, e-mail server, a device utilizing point-to-point protocol (PPP) to the Internet via a central remote access server, a headset, a personal server, a wearable computer, a wireless camera, and a mobile music player.
8. Method, according to claim 1, further comprising:
providing communication links between the Base Stations, wherein the communication links between the Base Stations are selected from the group consisting of RF links and land lines; and
transferring connection status information and synchronization information between the Base Stations over the communications links.
9. Method, according to claim 1, wherein:
the Base Stations and the Switch are connected via a wired or wireless local area network (LAN).
10. Method, according to claim 1, wherein:
the wireless communication system comprises a wireless private branch exchange (WPBX) handling calls from mobile units comprising handsets.

11. In a wireless communication system comprising at least two Base Stations and at least one Switch in communication with the Base Stations, a method of performing handoff of a session from a Base Station connected with a mobile unit to a neighboring Base Station, wherein an instance of a low-level communications protocol is running at the Base Station connected with the mobile unit, comprising:

at the Switch, determining when to perform handoff to a selected one of the neighboring Base Stations;

at the selected one of the neighboring Base Stations, creating a copy of the low-level communications protocol, including at least a synchronized time of day (TOD) parameter;

from the Switch, sending a command to stop communication with the mobile unit at a specified TOD to the Base Station connected with the mobile unit and sending a command to start communication with the mobile unit at the specified TOD to the selected one of the neighboring Base Stations; and

updating session status tables in the Switch and in the Base Stations.

12. Method, according to claim 11, wherein:
the session is selected from the group consisting of phone call and data link.

13. Method, according to claim 11, wherein:
the low-level communications protocol comprises procedures selected from the group consisting of control and modulation of RF signals transmitted to the mobile unit by the Base Station, frequency hopping, error correction, accurate time synchronization, device address, rough Time Of Day (TOD), voice channel allocation, forward error correction parameters, encryption keys, authentication keys, voice coding, device addressing, address of a parked mobile unit, definition of an asynchronous data link, and data FIFOs.

14. Method, according to claim 11, wherein:
the mobile unit is equipped with a short-range wireless communication transmitter/receiver.

15. Method, according to claim 11, wherein the mobile unit is a device selected from the group consisting of:

telephone handset, standard cordless telephone handset, cellular telephone handset, personal data device, personal digital assistant (PDA), computer, laptop computer, e-mail server, a device utilizing point-to-point protocol (PPP) to the Internet via a central remote access server, a headset, a personal server, a wearable computer, a wireless camera, and a mobile music player.

16. Method, according to claim 11, further comprising:
providing communication links between the Base Stations, wherein the communication links between the Base Stations are selected from the group consisting of RF links and land lines; and
transferring connection status information and synchronization information between the Base Stations over the communications links.

17. Method, according to claim 11, wherein:
the Base Stations and the Switch are connected via a wired or wireless local area network (LAN).

18. Method, according to claim 11, wherein:
the wireless communication system comprises a wireless private branch exchange (WPBX) handling calls from mobile units comprising handsets.